

# FOCUS

Communicating NCID's prevention and control programs for new and reemerging infectious diseases

#### Message from the Director

#### Dear Colleagues:

The NCID workforce represents an action-oriented group of public health professionals; we are often more comfortable in the field or at the laboratory bench than in ceremonies. Therefore, it was largely without ceremony that NCID held its annual awards celebration in May. NCID recognized each person and group it nominated for CDC and PHS level awards by presenting a certificate and a memento to the nominees.

A highlight of the event was the presentation of the Nakano Citations for seven peer-reviewed papers published in 1997 by NCID first authors (one of which went on to win the Shepard Award; see p. 3). Mrs. Margaret Nakano assisted in the presentation of the citations, which commemorate the distinguished life and career of her late husband, Dr. James Nakano, who led the CDC's Poxvirus Laboratory from 1972 to 1987.

NCID is indeed fortunate to have a staff of dedicated professionals, who unselfishly serve the cause of public health.

James M / Lughes, M.D.

#### Focus on Viral and Rickettsial Diseases

# CDC team assists in investigation of Rift Valley fever outbreak in East Africa

n response to an urgent request from the Kenya Ministry of Health (MOH), NCID and NCEH scientists traveled to East Africa in early 1998 to assist in an investigation of a large outbreak of Rift Valley fever (RVF). CDC's investigative team members included April Allman, Paul Arguin (EIS), Thomas Ksiazek, Ali Khan. Stuart Nichol. Pat Stockton. and C.J. Peters. Division of Viral and Rickettsial Diseases, NCID; Christopher Woods (EIS), Division of Bacterial and Mycotic Diseases, NCID; Tom Burkot, Marvin Godsey, Juliana Grant, Eduard Saunders, Barry Miller, Roger Nasci, and John Stine. Division of Vector-Borne Infectious Diseases, NCID: Pat

McConnon, OD, NCID; and Ron Burger, Alden Henderson, and Adam Karpati (EIS), Division of Environmental Hazards and Health Effects, NCEH. The team conducted serologic surveys and epidemiologic, entomologic, and environmental studies to confirm the cause of the outbreak, determine its extent, and identify control measures.

The outbreak was first recognized in December 1997 when the Kenya MOH and the World Health Organization received reports of approximately 500 unexplained deaths among people living in



Patrick Stockton, SPB microbiologist, prepares to draw blood specimen from villagers in northeast Kenya. CDC staff performed studies of samples from local residents, livestock, and insects as part of a collaborative investigation of RVF in East Africa in early 1998.

remote areas of Kenya and southern Somalia. Local officials also reported high rates of hemorrhagic illness and death among livestock in the region. Preliminary serologic and epidemiologic studies found evidence of acute infection with RVF virus among a substantial percentage (23% to 47%) of ill persons from whom specimens were collected; some cases of hemorrhagic illness were associated with other causes, including other viral infections, *Shigella* dysentery, and leptospirosis. The Kenya MOH estimated that

Rift Valley fever - continued from page 1

about 89,000 people in the North Eastern province (9% of that region's population) may have been infected with RVF virus. Reports from livestock owners in this region indicated that approximately 70% of sheep and goats and 20% to 30% of cattle and camels had died. These preliminary estimates suggest that the RVF outbreak in this region may be the largest ever recorded. In addition to southern and northeastern Kenya and southern Somalia, the affected areas included portions of Tanzania and Uganda.

RVF virus is a bunyavirus that was first identified in Kenya in 1930 and is enzootic throughout most of sub-Saharan Africa. Outbreaks of RVF disease occur periodically among livestock and human populations in this region, usually in years of heavy rainfall and flooding, which results in increased hatching of Aedes mosquitos, the primary reservoir and vector of RVF virus. The virus can be transmitted to humans and livestock by the bite of infected mosquitoes and possibly other blood-sucking insects. Humans can also contract RVF through exposure to the blood or other body fluids of infected animals. People infected with RVF virus typically have a febrile, flulike illness, but 1% to 2% of infections may result in fatal hemorrhagic fever. Mortality rates are much higher for infected animals.

The extent of the recent RVF outbreak in East Africa and the probability of recurring epizootic/ epidemic cycles demonstrate the need for developing new methods to predict and prevent future RVF outbreaks, according to Dr. Peters, chief of DVRD's Special Pathogens Branch. SPB is currently collaborating with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, and other federal agencies to explore the use of remote sensing satellite information, climatologic data, and geographic information system analyses to identify environmental and ecologic conditions that may predict future RVF outbreaks. ■

#### Focus on Parasitic Diseases

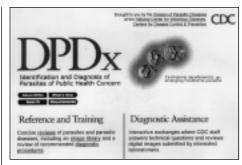
# DPD develops website for diagnosis of parasitic diseases

arasitic diseases, a major global health problem, are too frequently misdiagnosed.

Some areas may lack resources and trained personnel, while in others, health professionals may be unfamiliar with diseases they see infrequently (e.g., malaria) and unable to recognize an emerging infectious disease (e.g., cyclosporiasis). The Division of Parasitic Diseases (DPD) is currently attempting to improve this situation by using the Internet.

With emerging infectious diseases health communication funds, in collaboration with NCID's data management staff, DPD has developed a website, "DPDx," www.dpd. cdc.gov/dpdx, which has been on the Internet since March 1998. The website offers two functions: 1) it provides technical information to all visitors, who can browse through material (text, images, videoclips) on parasitic diseases and related diagnostic procedures; 2) it provides consultations to registered users, who can submit by E-mail technical questions or digital images of problematic cases for review and rapid response by DPD staff. These services will increase DPD's effectiveness as the national reference center for the diagnosis of parasitic diseases.

This use of the Internet has several advantages. The Internet's imaging capabilities are well suited to the diagnosis of parasitic diseases, which relies heavily on morphologic findings. The DPDx website offers practically limitless free material (some 2,000 files are currently active), which is frequently updated and rapidly disseminated. Prompt feedback to users can enhance patient management and public health response. The global scale of the exchanges encourages the development of an international interactive network of expertise.



The DPDx website received 240,000 hits during May-June 1998.

DPDx has limitations as well: the website can reach only those who have access to a computer and to the Internet; the quality of images is heavily dependent on equipment and software; and users who wish to send digital images for review by DPD must capture the images with a digital scanner, which most diagnostic laboratories do not have. But, these limitations should be overcome in the near future, as the use of computers in public health practice continues to increase.

The DPDx website targets a broad audience, including health institutions and laboratories, both public and private, in the United States and abroad. Further development of the website will rely heavily on contributions from participants. DPD has actively sought the participation of state health departments (especially their public health laboratories), which serve as a vital link between DPD/CDC and health institutions in the states. To date, 27 state health departments are registered DPDx users. In addition, NCID's Food Safety Initiative is supporting the acquisition of equipment by five state health departments that will allow them to participate fully. During the coming year, an evaluation of the DPDx network will assess whether this Internet approach helps strengthen the diagnosis of parasitic diseases.

For further information, contact the DPDx team by E-mail at dpdx.cdc.gov. ■

#### Focus on Hospital Infections

#### **Shepard Award Given to HIP Paper**

ospital Infections Program staff have been awarded the Charles C. Shepard Science Award for 1998 for the most outstanding peer reviewed research paper published by CDC/ATSDR scientists during the preceding year.

The paper, "A Case-Control Study of HIV Seroconversion in Health Care Workers After

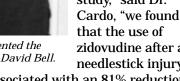
David Bell, and the CDC Needlestick Surveillance Group. The paper was published in the New England Journal of Medicine in November 1997.

"We were honored just to be nominated," said Dr. Cardo, first author of the paper and acting chief of HIP's HIV Infections Branch. "To win is very special and reflects the

> dedicated efforts of a lot of people."

The paper reported on a study that sought to identify risk factors for transmission of HIV to health care workers after needlestick exposures to HIV.

"During the study," said Dr. Cardo, "we found that the use of zidovudine after a needlestick injury



was associated with an 81% reduction in the risk of getting HIV infection."

Results of the study had a major impact on Public Health Service Recommendations for treatment of health care workers exposed to HIV. ■



Dixie Snider (L), CDC's associate director for science, presented the Shepard Award to Denise Cardo, Pamela Srivastava, and David Bell.

Percutaneous Exposure," was authored by Denise Cardo, David Culver, Carol Ciesielski, Pamela Srivastava, Ruthanne Marcus, Dominique Abiteboul, Julia Heptonstall, Giuseppe Ippolito, Florence Lot, Penny McKibben,

### HIP network to combat antimicrobial resistance in children's hospitals

he Hospital Infections Program is funding a cooperative agreement with the National Association of Children's Hospitals and Related Institutions (NACHRI) to establish a pediatric network for the prevention and control of healthcare-related adverse events in pediatric patients.

Virtually all children's hospitals in the United States are members of NACHRI. These Pediatric Centers for Excellence in Healthcare Epidemiology will focus on prevention and control of antimicrobial resistance and improving antimicrobial use.

#### William Jarvis elected to SHEA office

illiam Jarvis, acting director, Hospital Infections Program, has been

elected by the members of the Society for Healthcare **Epidemiology** (SHEA) to a 4-year term of office, serving as vice-president in 1998; presidentelect in 1999:



William Jarvis

president in 2000; and past president in 2001.

Dr. Jarvis and HIP have worked closely with SHEA for a number of years to prevent hospital infections and to combat antimicrobial resistance in the healthcare setting.

SHEA is a national organization of approximately 1,000 doctoral-level epidemiologists from public and private organizations whose principal mission is to promote the highest quality of patient care and health care worker safety in all healthcare settings.

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Visit the National Center for Infectious Diseases on the World-Wide Web at http://www.cdc.gov/ncidod/ncid.htm

#### Focus on Vector-Borne Infectious Diseases

### American Nurses Foundation awarded cooperative agreement to fight Lyme disease

"The nurse is usually the first contact a patient has when seeking medical care. A neighbor will often call a nurse before contacting other medical professionals when seeking advice," says Peggy Veroneau, project director of the American Nurses Foundation (ANF). When the question is about ticks and Lyme disease, nurses should have the answers, according to James Herrington, public health education specialist, Division of Vector-Borne Infectious Diseases (DVBID).

Under a 3-year \$140,000 cooperative agreement with CDC/DVBID, the ANF will convene an expert panel of nurses with experience and expertise in Lyme disease to develop two levels of continuing education programs for

nurses: a 90-minute awareness program for attenders of national nursing conferences and a 1-day program for nurses who wish to become Lyme disease educators. ANF will also develop an awareness campaign about Lyme disease for professional nurses and will help facilitate collaborative relationships between nursing and other professional groups with an interest in Lyme disease prevention. ANF plans to equip nurses with knowledge and skills necessary to identify potential cases of Lyme disease, to act as patient advocate in treatment and referral, and to educate other nurses and consumers about the disease.

Founded in 1955 as the research.

education. and charitable affiliate of the American Nurses Association (the largest nursing organization Capitulum (mouthparts) of the ANF raises funds,



in America). Ixodes scapularis, the tick that transmits bacteria that cause Lyme disease.

develops, and manages grants to support advances in research, education, and clinical practice. For more information, contact Project Officer James Herrington, 970-221-6429, E-mail jxh7@cdc.gov. ■

#### **DVBID** represented at Rotary International Convention

n June, 19,000 Rotarians from 119 countries gathered in Indianapolis, Indiana, for the 89th Annual Rotary International Convention. Speakers addressed the ways in which Rotarians throughout the world combat poverty, hunger, and illiteracy and serve their communities. The Division of Vector-Borne Infectious Diseases (DVBID) was represented at the convention by Hilda Seda, health communication specialist from the Dengue Branch in San Juan, Puerto Rico. Ms. Seda staffed the new Dengue Branch exhibit (see photo) about dengue and Rotary's role in the prevention and control of dengue and dengue hemorrhagic fever. She distributed the CDC brochure, "Preventing Dengue in Travelers," and other literature about the Rotary/CDC disease prevention partnership. The partnership focuses on the importance of active community participation in the prevention

of this mosquito-borne disease, which occurs in tropical areas of the world.

Following the development of programs in Puerto Rico, Latin America, Asia, Australia, and the South Pacific by **Duane Gubler and Gary** Clark, the Rotary Foundation recently awarded a \$500,000 3-H (Health, Hunger, and Humanity) Grant for dengue hemorrhagic fever prevention to Rotary Districts in Colorado, Puerto Rico, Colombia, and the Philippines.

As a result of DVBID's presence in Indianapolis, 33 Rotary Clubs from Asia and the South Pacific,

Africa, Latin America, and the Caribbean expressed interest in initiating dengue prevention projects with their clubs. Thirteen clubs from



Hilda Seda, DVBID, staffed the Dengue Branch exhibit at the Rotary International Convention in June.

the U.S., Canada, and Europe offered to provide financial support for projects to be developed by Rotary Clubs in dengue-endemic countries.

#### Focus on Quarantine

# William Simonsen ends CDC career in Frankfurt

illiam Simonsen, regional coordinator responsible for refugee and immigrant health assessment activities for Europe, Africa, and the Middle East, retired on May 3, 1998. Of Mr. Simonsen's 33 years of government service, the last 11 were spent in the CDC office in Frankfurt, Germany.

The Frankfurt office opened in 1985, when the flow of refugees from Eastern Europe, Africa, and the Near East increased. The city was selected for the regional office because of its strategic location, which facilitated Mr. Simonsen's frequent travel to consular posts throughout Europe, Africa, and Asia. In addition, Frankfurt is a regional post of the Immigration and Naturalization Service (INS) and the designated consular post in Germany for processing most immigrant visa applications.

The Division of Quarantine (DQ) is responsible for overseeing the screening examination required overseas for immigrants and refugees resettling in the United States. Mr. Simonsen carried out this aspect of DQ's mission by reviewing records; interviewing recently examined applicants, consular staff, and the panel physicians; observing the panel physicians as they performed medical examinations; visiting laboratories to audit the performance of tests for HIV and syphilis; and inspecting the equipment, films, and procedures used by radiology laboratories.

During Mr. Simonsen's tenure, tremendous changes occurred in the region, among them the collapse of the Iron Curtain, the fall of the Soviet Union, the emergence of democratic governments in Eastern Europe, and, most recently, the war in Bosnia. All these changes affected the flow of refugees to the United

States. Mr.
Simonsen
worked
closely with
the INS, the
International
Organization
for Migration,
and voluntary
organizations
involved with
the movements of



William Simonsen

refugee populations. One of Mr. Simonsen's principal accomplishments was establishing a central health assessment site at a hospital in Moscow for the examination of refugees and parolees from the former Soviet Union.

Mr. Simonsen began his career as a public health adviser with the sexually transmitted diseases program in New York City; he was also posted to the state health departments of Indiana, New Jersey, and Hawaii. He noted that he has "served in interesting places at interesting times." Messages recognizing Mr. Simonsen's service were received from places as diverse as Bucharest, Belize City, Copenhagen, Karachi, and Zagreb. A letter from the Assistant Secretary for Consular Affairs of the Department of State read (in part): "Your contributions to our panel physician programs at numerous posts in Europe, Africa, and the Middle East will be sorely missed. As we work to improve the panel physician program, we will draw upon the wealth of information and insight you have provided over the years."

With Mr. Simonsen's retirement, the regional office in Frankfurt has closed. Refugee processing, including the oversight and monitoring of panel physicians, will be centralized at DQ headquarters in Atlanta.

## IDEA Place

Emerging infectious diseases video conferences broadcast in West Virginia

est Virginia University (WVU) and the West Virginia Department of Health and Human Resources' Bureau of Public Health (BPH), with funding from NCID, have developed an innovative educational program on emerging infectious diseases for state health care workers. Since January 1996, interactive video conferences have been broadcast monthly throughout West Virginia via Mountaineer Doctor Television (MDTV), a statewide interactive telemedicine system developed by WVU for long-distance patient consultation and distance learning programs.

The MDTV "Emerging Infectious Disease" lecture series brings information on new and reemerging pathogens directly to health care workers and health professions students. The hour-long sessions are taught jointly by WVU faculty and BPH experts. Nationally recognized speakers have also participated. Topics have included antimicrobial resistance, foodborne illnesses, tuberculosis, hepatitis C, Lyme borreliosis, rabies, vaccine-preventable diseases, ehrlichiosis, and HIV exposures to health care workers.

More than 250 health professionals have participated from 16 sites, including physicians (45%); public health nurses, other nurses, and infection control practitioners (30%); laboratorians (10%); pharmacists (10%); and others (sanitarians, students, etc). WVU and BHP will continue their partnership with the 1998 series. For information, contact Dr. Cathy Slemp, 304-558-5358.

Lela Folkers Office of Health Communication, NCID

#### Focus on Bacterial and Mycotic Diseases

#### Richard Facklam receives ASM award

ichard Facklam, Division of **Bacterial and Mycotic** ✓ Diseases, received the 1998 **Becton Dickinson and Company** Award in Clinical Microbiology from the American Society for Microbiology at their annual meeting in Atlanta on May 19.

Dr. Facklam was recognized for his numerous contributions to the field of clinical microbiology and particularly for his work with streptococci, for which he is known internationally. As chief of the streptococcus laboratory, he has directed the development of several tests to categorize and identify these organisms. One of the most important, a new system for M-typing group A streptococci based on gene sequencing, will now allow the typing of virtually all group A streptococci in the world.

CDC's streptococcus laboratory has been a reference laboratory since 1949. Since then it has noted the changes in the epidemiology of S. pneumoniae and, particularly in recent years, the increasing spread of resistant strains in the United

States and several developing countries. In response to these trends. Dr. Facklam has used the work of his laboratory to support epidemiologic studies and communications projects that help Richard Facklam increase under-



standing of the problem. He has assisted in developing manuals and procedures for surveillance, laboratory methods, and control of respiratory diseases in children in developing countries, and he participated in studies of antimicrobial resistance in several countries. Also, the data generated from typing S. pneumoniae at CDC have contributed to the development of vaccines for adults and children.

Dr. Facklam's efforts have been influential in keeping CDC a primary international streptococcal subtyping center.

#### Focus on AIDS, STD, and TB Laboratory Research

### System for syphilis subtyping begun

lthough syphilis rates in the United States are among the lowest ever reported, the nation still has the highest rate of syphilis in the industrial world. Overall, syphilis has been eliminated on the local level in most U.S. counties, but cases continue to occur in urban and rural areas of the South and in several large cities. Syphilis is caused by the spirochete Treponema pallidum. In addition to causing serious illness in the host, the disease can be transmitted perinatally, resulting in fetal death or infants born with congenital



(L-R) Hsi Liu, Stephen Morse, and Bret Steiner

syphilis (severe neurologic damage). The early symptoms of syphilis open genital sores—have been

continued on page 7



### Focus on Global Health

#### Collaborations with PAHO

n exciting new collaboration was recently begun with the Pan American Health Organization (PAHO) involving regional partnerships linking countries in South America in coordinated international investigations of emerging infectious diseases. Representatives of ministries of health, laboratory directors, and research virologists met in Manaus, Brazil, to establish an Amazon Region network for surveillance of emerging infectious diseases. The network will include partners from Brazil, Peru, Colombia, Bolivia, and Venezuela.

Six collaborating laboratories agreed to systematically examine diagnostic material from patients seen with undifferentiated febrile illness, hemorrhagic fever, febrile icteric syndrome, and acute noncardiogenic respiratory distress. All laboratoriess will use the same initial and secondary batteries of diagnostic tests specifically selected for each syndrome. Each laboratory may test up to 2,000 specimens per year. In addition, the laboratories agreed to systematically examine sudden unexpected deaths seen among otherwise healthy individuals aged 1 to 49 years.

This study will complement a similar effort now under way in the United States. NCID will be an important implementing partner in these collaborations, serving as a reference laboratory, assisting in resolution of technical questions, and helping fund startup costs.

James LeDuc Associate Director for Global Health NCID

shown to increase the risk of human immunodeficiency virus (HIV) transmission. In fact, recent studies suggest that the heterosexual spread of HIV has occurred in geographic areas that experienced earlier syphilis outbreaks.

A major obstacle in epidemiologic studies of syphilis has been the inability to cultivate *T. pallidum* on artificial medium in quantities sufficient to detect differences among strains. A method to differentiate clinical isolates of *T. pallidum* would be valuable for studying the transmission of syphilis and deter-

mining whether new strains were being introduced into a community. To address this problem, Hsi Liu, Bret Steiner, and Stephen Morse from the Division of AIDS, STD, and TB Laboratory Research are currently involved in a study to develop a molecular subtyping method for *T. pallidum*. In the study, two genes exhibiting intrastrain variability were identified as potential targets for strain differentiation: the acidic repeat protein (arp) gene and a member of the tpr gene family. By using polymerase chain reaction (PCR) amplification and restriction

endonuclease digestion of PCR products from laboratory strains and clinical specimens, these researchers identified 16 subtypes among 46 specimens and strains examined. Their efforts represent the first molecular subtyping system to distinguish among clinical isolates of *T. pallidum;* also, it can be used directly on clinical specimens obtained from patients with syphilis. In addition, according to Dr. Liu, this typing system is stable, reproducible, and easy to perform.

#### **NEWS BRIEFS**

#### 1998 Halonen Award Presented to Steve Monroe

Stephan S. Monroe, research biologist, Respiratory and Enteric Viruses Branch, Division of Viral and Rickettsial Diseases, received the 1998 Pekka E. Halonen Award on May 6. Dr. Monroe was recognized for his work in developing improved methods for detecting characterizing viral agents of gastroenteritis, including astroviruses and caliciviruses. The Halonen Award is presented annually to a DVRD scientist for outstanding accomplishments in diagnostic virology.



Stephan Monroe, shown here with DVRD Director Brian Mahy (L) and Deputy Director Rima Khabbaz, received the 1998 Halonen Award on May 6.



Seymour Williams, NIP; Carolyn Bridges, Influenza Branch, DVRD; Brian Mahy, director, DVRD; Keiji Fukuda, Influenza Branch, DVRD; Anthony Mounts and Joseph Bresee, Respiratory and Enteric Viruses Branch, DVRD; Nancy Cox, chief, Influenza Branch, DVRD; Matt Clarke, Office of the Director, DVRD; Barbara Reynolds, Office of Communication, CDC; Jacqueline Katz, Influenza Branch; James Hughes, director, NCID; Laura Conn, Office of the Director, NCID; and Claire Broome, acting director, CDC.

# Hong Kong flu team receives award

Members of the CDC team that assisted in investigating the outbreak of avian flu in Hong Kong during December 1997 and January 1998 received a special award during Public Health Week earlier this year. The award was given in recognition of the group's efforts to aid the Hong Kong Department of Health in identifying the cause and extent of the outbreak, which affected 18 local

residents and resulted in six deaths. The outbreak was caused by a novel strain of influenza A(H5N1) virus that was previously known to infect only birds. "This award recognizes the extraordinary work of this group during the investigation in Hong Kong and acknowledges professional expertise and personal dedication to addressing an international public health threat," said NCID Director James Hughes.

#### News Makers.

#### **Award**

Olen Kew, chief, Molecular Virology Section, Respiratory and Enteric Viruses Branch, Division of Viral and Rickettsial Diseases, received the 1998 CDC Sigma Xi Walter Dowdle



Award for Achievement in Public Health Science in June. Dr. Kew was recognized for his work on the molecular epidemiology of polioviruses and for contributions to the global polio eradication effort.

#### **Staff Changes**

**Barbara Kindell** has joined OAS, NCID, as a transportation assistant. She previously worked in the National Center for HIV, STD and TB Prevention.

Margarette Kolczak has joined DPD's Data Management Activity as a statistician. She previously worked in DBMD.

**Deborah Levy**, EIS '96, has joined DPD's Data Management Activity as an epidemiologist. She previously worked in DPD's Parasitic Diseases Section.

**Rendi Murphree**, microbiologist, has joined the Molecular Bacteriology Section, Bacterial Zoonoses Branch, DVBID.

**Karen A. Peterson** has accepted the position of secretary to the director, DVBID. She formerly served as secretary in the Bacterial Zoonoses Branch.

**Kimberly Walker** has joined OAS, NCID. She previously served with the Indian Health Service. Her major duties will focus on providing guidance to NCID on all Commissioned Corps issues.

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